

Curriculum Vitae  
**Chuan-Ren Chen**

(陳傳仁)

High Energy Physics Division  
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**Contact Information:**

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**Personal Information:**

Citizenship: Taiwan

Marital Status: Married

**Education:**

Ph. D., Theoretical High Energy Physics  
Michigan State University, USA  
Aug., 2002 – Feb., 2008

Master, Theoretical High Energy Physics  
National Taiwan Normal University, Taiwan  
Aug., 2000 – Jul., 2002

Bachelor, Physics  
National Taiwan Normal University, Taiwan  
Sep., 1992 – Jul., 1996

**Experience:**

Postdoc,  
High Energy Physics Theory Group  
Argonne National Laboratory, USA  
August, 2011 – present

Postdoc,  
Institute for the Physics and Mathematics of the Universe  
University of Tokyo, Japan  
May, 2008 – Aug., 2011  
Graduate Research Assistant, Theoretical High Energy Physics Group,  
Michigan State University, USA  
May, 2006 – Feb., 2008  
Aug., 2005 – Jan., 2006

Graduate Teaching Assistant, Department of Physics and Astronomy,  
Michigan State University, USA  
Jan., 2006 – May, 2006  
Aug., 2002 – Aug., 2005

Graduate Teaching Assistant, Department of Physics,  
National Taiwan Normal University, Taiwan  
Aug., 1999 – Jul., 2002  
Military Service, Taiwan  
Jul., 1997 – May, 1999

High School Physics Teacher,  
Chung Shen Junior High School, Taiwan

Aug., 1996 – Jul., 1997

## Awards:

Ph. D. Dissertation Completion Fellowship Michigan State University, USA	2007
Recruiting Fellowship, Department of Physics and Astronomy, Michigan State University, USA	2002
Outstanding Student Award (傑出學生), National Taiwan Normal University, Taiwan	1996
Dr. Paul Ching-Wu Chu Scholarship (朱經武獎學金), CTCI Foundation, Taiwan	1992 – 1996

## Research:

### Publications:

1. E. Berger, Q.-H. Cao, **C.-R. Chen** and H. Zhang,  
"Top quark polarization as a probe of models with extra gauge bosons,"  
Phys. Rev. D 83, 114026 (2011), arXiv: 1103.3274 [hep-ph]
2. E. Berger, Q.-H. Cao, **C.-R. Chen**, C.-S. Li and H. Zhang,  
"Top quark forward-backward asymmetry and same-sign top quark pairs,"  
Phys. Rev. Lett. 106, 201801 (2011), arXiv: 1101.5625 [hep-ph]
3. E. Berger, Q.-H. Cao, **C.-R. Chen**, G. Shaughnessy and H. Zhang,  
"Color sextet vector bosons and same-sign top quark pairs at the LHC,"  
Phys. Lett. B 696, 68 (2011), arXiv: 1009.5379 [hep-ph]
4. **C.-R. Chen**, M. M. Nojiri and W. Sreethawong,  
"Search for the elusive Higgs boson using jet structure at LHC,"  
JHEP 1011, 012 (2010), arXiv:1006.1151 [hep-ph].
5. E. Berger, Q.-H. Cao, **C.-R. Chen**, G. Shaughnessy and H. Zhang,  
"Color sextet scalars in early LHC experiments,"  
Phys. Rev. Lett. 105, 181802 (2010), arXiv:1005.2622 [hep-ph].
6. **C.-R. Chen**, P. H. Frampton, F. Takahashi and T. T. Yanagida,  
"Probing variant axion models at LHC,"  
JHEP 1006, 059 (2010), arXiv:1005.1185 [hep-ph].
7. Q.-H. Cao, **C.-R. Chen**, C.-S. Li and H. Zhang,  
"Effective dark matter model: relic density, CDMS II, Fermi LAT and LHC,"  
JHEP 1108, 018 (2011), arXiv:0912.4511 [hep-ph].
8. **C.-R. Chen**, S. K. Mandal and F. Takahashi,  
"Gamma-ray constraints on hadronic and leptonic activities of decaying dark matter,"  
JCAP 1001, 023 (2010), [arXiv:0910.2639 [hep-ph]].
9. Q.-H. Cao, **C.-R. Chen**, C. Schmidt and C.-P. Yuan,  
"Improved predictions for Higgs  $Q_t$  at the Tevatron and the LHC,"  
arXiv:0909.2305 [hep-ph].

10. **C.-R. Chen**, M. M. Nojiri, S.C. Park and J. Shu,  
"Kaluza-Klein dark matter after Fermi,"  
arXiv:0908.4317 [hep-ph].
11. **C.-R. Chen**, M. M. Nojiri, S.C. Park, J. Shu and M. Takeuchi,  
"Dark matter and collider phenomenology of split-UED,"  
JHEP 0909, 078 (2009), [arXiv:0903.1971 [hep-ph]].
12. **C.-R. Chen**, K. Hamaguchi, M. M. Nojiri, F. Takahashi and S. Torii,  
"Dark matter model selection and the ATIC/PPB-BETS anomaly,"  
JCAP 0905, 015 (2009), [arXiv:0812.4200 [astro-ph]].
13. **C.-R. Chen**, M. M. Nojiri, F. Takahashi and T. T. Yanagida,  
"Decaying hidden gauge boson and the PAMELA and ATIC/PPB-BETS anomalies,"  
Prog. Theor. Phys. 122, 553 (2009), [arXiv:0811.3357 [astro-ph]]. **TOPCITE= 50+**
14. **C.-R. Chen**, W. Klemm, V. Rentala and K. Wang,  
"Color sextet scalars at the CERN Large Hadron Collider,"  
Phys. Rev. D 79, 054002 (2009), [arXiv:0811.2105 [hep-ph]].
15. **C.-R. Chen**, F. Takahashi and T. T. Yanagida,  
"High energy cosmic-ray positrons from hidden-gauge-boson dark matter,"  
Phys. Lett. B 673, 255 (2009), [arXiv:0811.0477 [hep-ph]]. **TOPCITE= 50+**
16. **C.-R. Chen** and F. Takahashi,  
"Cosmic rays from leptonic dark matter,"  
JCAP 0902, 004 (2009), [arXiv:0810.4110 [hep-ph]]. **TOPCITE= 50+**
17. **C.-R. Chen**, F. Takahashi and T. T. Yanagida,  
"Gamma rays and positrons from a decaying hidden gauge boson,"  
Phys. Lett. B 671, 71 (2009), [arXiv:0809.0792, hep-ph]. **TOPCITE= 50+**
18. Q.-H. Cao, **C.-R. Chen**, F. Larios and C.-P. Yuan,  
"Anomalous gtt couplings in the littlest Higgs model with T-parity,"  
Phys. Rev. D 79, 015004 (2009), [arXiv:0801.2998 [hep-ph]].
19. Q.-H. Cao and **C.-R. Chen**,  
"Signatures of extra gauge bosons in the littlest Higgs model with T-parity at  
future colliders,"  
Phys. Rev. D 76, 075007 (2007), [arXiv:0707.0877[hep-ph]].
20. Q.-H. Cao and **C.-R. Chen**,  
"Resummation effects in the search of SM Higgs boson at hadron colliders,"  
Phys. Rev. D 76, 073006 (2007), [arXiv:0704.1344 [hep-ph]].
21. A. Belyaev, **C.-R. Chen**, K. Tobe and C.-P. Yuan,  
"Phenomenology of littlest Higgs model with T-parity: Including effects of T-odd  
fermions,"  
Phys. Rev. D 74, 115020 (2006), [arXiv:hep-ph/0609179]. **TOPCITE= 50+**
22. **C.-R. Chen**, K. Tobe and C.-P. Yuan,  
"Higgs boson production and decay in little Higgs models with T-parity,"  
Phys. Lett. B 640, 263 (2006), [arXiv:hep-ph/0602211]. **TOPCITE= 50+**
23. **C.-R. Chen**, F. Larios and C.-P. Yuan,  
"General analysis of single top production and W helicity in top decay,"  
Phys. Lett. B 631, 126 (2005), [arXiv:hep-ph/0503040].

### **Schools, workshops and conferences:**

1. Top Quark Symposium 2005,  
MCTP, University of Michigan, Ann Arbor, USA, April 6 – 8, 2005.
2. The LHC Inverse Workshop,  
MCTP, University of Michigan, Ann Arbor, USA, April 12 – 15, 2006.
3. PHENO 06 Symposium,  
University of Wisconsin, Madison, USA, May 15 – 17, 2006.
4. Theoretical Advanced Study Institute (TASI 2006) Summer School,  
“Exploring New Frontiers Using Colliders and Neutrinos,”  
University of Colorado, Boulder, USA, June 4 – 30, 2006.
5. PHENO 07 Symposium,  
University of Wisconsin, Madison, USA, May 7 – 9, 2007.
6. Focus Week on LHC Physics,  
IPMU, University of Tokyo, Kashiwa, Japan, June 23 – 27, 2008.  
(Local Organizer)
7. From LHC to The Universe,  
National Taiwan University, Taipei, Taiwan, December 15 – 18, 2008.
8. 16<sup>th</sup> Yukawa International Seminar (YKIS) Conference,  
Yukawa Institute for Theoretical Physics,  
Kyoto University, Kyoto, Japan, February 16 – 19, 2009.
9. 16<sup>th</sup> Yukawa International Seminar (YKIS) Symposium,  
Yukawa Institute for Theoretical Physics,  
Kyoto University, Kyoto, Japan, March 9 – 13, 2009.
10. Focus Week on Determination of Masses and Spins of New Particles at the LHC,  
IPMU, University of Tokyo, Kashiwa, Japan, March 16 – 20, 2009.  
(Local Organizer)
11. The 8<sup>th</sup> Particle Physics Phenomenology Workshop (PPP8),  
National Cheng Kung University, Tainan, Taiwan, May 20 – 23, 2009.
12. Workshop on Dark Matter, LHC Physics and Cosmology,  
Korea Institute for Advanced Study (KIAS), Seoul, Korea, August 27 – September 4, 2009.
13. 2<sup>nd</sup> Workshop on LHC Physics,  
NCTS, National Cheng Kung University, Tainan, Taiwan, October 24, 2009.
14. Focus Week on QCD in connection with BSM study at LHC,  
IPMU, University of Tokyo, Kashiwa, Japan, November 10 – 13, 2009.
15. International Workshop on Dark Matter, Dark Energy and Matter-Antimatter Asymmetry,  
National Tsing Hua University, Hsinchu, Taiwan, November 20 – 21, 2009.
16. Focus Week on Indirect Dark Matter Search,  
IPMU, University of Tokyo, Kashiwa, Japan, December 7 – 11, 2009.
17. PHENO 10 Symposium,  
University of Wisconsin, Madison, USA, May 10 – 12, 2010.

18. COSMO/CosPA 2010  
University of Tokyo, Tokyo, Japan, Sep. 27 – Oct. 1, 2010.
19. 2<sup>nd</sup> International Workshop on Dark Matter, Dark Energy and Matter-Antimatter Asymmetry,  
National Tsing Hua University, Hsinchu, Taiwan, November 5 – 6, 2010.
20. Workshop Beyond Standard Models and the Dark Sides of Our Universe,  
Shanghai Jiao Tong University, Shanghai, China, November 18 – 20, 2010.
21. 2<sup>nd</sup> Workshop of LHC Topical Program,  
NCTS, Hsichu, Taiwan, December 8 – 10, 2010

#### **Talks:**

1. “General Analysis of Single Top Production and W Helicity in Top Decay,”  
Journal Club Seminar of High Energy Physics Group,  
Michigan State University, East Lansing, Feb. 2005.
2. “Signatures of T-odd Gauge Boson in the Littlest Higgs Model with T-parity at  
Future Colliders,”  
PHENO 07 Symposium,  
University of Wisconsin, Madison, May 8, 2007.
3. “Phenomenology of Little Higgs Models,”  
HEP Theory Group Seminar,  
Argonne National Laboratory, Chicago, Dec. 4, 2007.
4. “Phenomenology of the Littlest Higgs Model with T-parity,”  
HEP Theory Group Seminar,  
Academia Sinica, Taipei, March 12, 2008.
5. “Phenomenology of the Littlest Higgs Model with T-parity,”  
HEP Theory Group Seminar,  
National Taiwan Normal University, Taipei, March 17, 2008.
6. “Phenomenology of the Littlest Higgs Model with T-parity,”  
HEP Theory Group Seminar,  
National Tsing Hua University, Hsinchu, March 20, 2008.
7. “Direct and Indirect Search for Signals of the Littlest Higgs Model with T-parity at Colliders,”  
IPMU Seminar,  
University of Tokyo, Kashiwa, April 23, 2008.
8. “Cosmic-ray Positrons from a Decaying Dark Matter,”  
Theory Division Seminar,  
KEK, Tsukuba, Dec. 2, 2008.
9. “Cosmic-ray Positrons from a Decaying Dark Matter,”  
HEP Theory Group Seminar,  
Academia Sinica, Taipei, Dec. 24, 2008.
10. “Cosmic-ray Positrons from a Decaying Dark Matter,”  
HEP Theory Group Seminar,  
National Taiwan Normal University, Taipei, Dec. 29, 2008.

11. "Dark Matter and Cosmic-ray Positrons,"  
HEP and Cosmology Theory Group Seminar,  
Tohoku University, Sendai, Jan. 15, 2009.
12. "Cosmic-ray Signal from Dark matter,"  
YKIS Conference,  
Kyoto University, Kyoto, Feb. 17, 2009.
13. "Dark Matter and Collider Phenomenology of UED,"  
The 8<sup>th</sup> Particle Physics Phenomenology Workshop (PPP8, invited speaker),  
National Cheng Kung University, Tainan, May 22, 2009.
14. "Dark Matter before and after Fermi,"  
Workshop on Dark Matter, LHC Physics and Cosmology (invited speaker),  
KIAS, Seoul, Sep. 2, 2009.
15. "Dark Matter Signals in Cosmic-rays,"  
HEP Theory Group Seminar,  
National Taiwan Normal University, Taipei, Oct. 19, 2009.
16. "Dark Matter Signals in Cosmic-rays,"  
HEP Theory Group Seminar,  
NCTS, National Tsing Hua University, Hsinchu, Oct. 20, 2009.
17. "Dark Matter Signals in Cosmic-rays,"  
HEP Theory Group Seminar,  
Academia Sinica, Taipei, Oct. 21, 2009.
18. "Dark Matter Signals in Cosmic-rays,"  
HEP Theory Group Seminar,  
National Central University, Jungli, Oct. 22, 2009.
19. "Digging out the Higgs Boson at the LHC with the Aid of Jet Substructure,"  
2<sup>nd</sup> workshop on LHC Physics (invited speaker),  
NCTS, National Cheng Kung University, Tainan, Oct. 24, 2009.
20. "Dark Matter Signals in Cosmic-rays,"  
HEP Theory Group Seminar,  
National Taiwan University, Taipei, Oct. 26, 2009.
21. "Gamma-ray Constraints on Decaying Dark Matter,"  
International Workshop on Dark Matter, Dark Energy and Matter-Antimatter Asymmetry,  
(invited speaker),  
National Tsing Hua University, Hsinchu, Nov. 20, 2009.
22. "Digging out the Buried Higgs Boson at the LHC,"  
HEP Theory Group Seminar,  
Academia Sinica, Taipei, Dec. 23, 2009.
23. "Higgs scenario from Peccei-Quinn Mechanism at the LHC,"  
PHENO 10 Symposium,  
University of Wisconsin, Madison, May 10, 2010.
24. "The variant axion models at the LHC,"  
HEP Theory Group Seminar,  
Academia Sinica, Taipei, July 10, 2010.

25. "The variant axion models at the LHC,"  
COSMO/CosPA 2010,  
University of Tokyo, Tokyo, Sep. 30, 2010.
26. "Model independent studies of dark matter,"  
2<sup>nd</sup> International Workshop on Dark Matter, Dark Energy and Matter-Antimatter Asymmetry  
(Invited Speaker),  
National Tsing Hua University, Hsinchu, Nov. 5, 2010.
27. "Cosmic-ray from decaying dark matter,"  
Workshop Beyond Standard Models and the Dark Sides of Our Universe (Invited Speaker),  
Shanghai Jiao Tong University, Shanghai, Nov. 18, 2010.
28. "Top quarks as a probe of heavy resonances at the LHC,"  
2<sup>nd</sup> Workshop of LHC Topical Program (Invited Speaker),  
NCTS, Hsichu, Dec. 8, 2010.
29. "Top quark forward-backward asymmetry and same-sign top pairs,"  
HEP Theory Group Seminar,  
Academia Sinica, Taipei, April 27, 2011.
30. "Top quark forward-backward asymmetry and same-sign top pairs,"  
HEP and Cosmology Theory Group Seminar,  
Tohoku University, Sendai, May. 26, 2011.
31. "Top quark forward-backward asymmetry and same-sign top pairs,"  
HEP Theory Group Seminar,  
Nagoya University, Nagoya, June. 27, 2011.

## Academic Service:

1. Referee of Physics Review D.
2. Referee of Physical Letter B.

## References:

### **Chien-Peng Yuan**

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### **Tsutomu T. Yanagida**

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**Ed Berger**

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